

A most Curious and Exact Calculation and Description of the TRIPLE CONJUNCTION, of the three Superiour Planets, Saturn, Jupiter, and Mars, in December 1722. Shewing how and when they pass by each other; as also the Transit of Mercury over the Sun's Disk, in October next. Done by CHARLES LEADBETTER, Author of The Treatise of Eclipses, and Teacher of the Mathematicks, at the Hand and Pen, in Cock-Lane, near Shore-Ditch, London. A Work very useful for all Gentlemen, Students in Astronomy, and others: To whom this Sheet is humbly Presented by the Author.

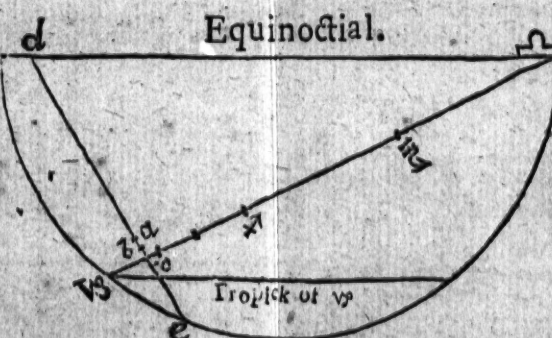
From Scientia Stellarum.

From Astronomia Carolina.

Time of equal Conjunction.	Long. S. O. I. II.	Anom. S. O. I. II.	Equal Time.	Long. S. O. I. II.	Anom. S. O. I. II.	Equal Time.	Long. S. O. I. II.	Anom. S. O. I. II.	Equal Time.	Long. S. O. I. II.	Anom. S. O. I. II.
1722.	9 30 37 38	8 18 49 41	1722.	8 8 31 0	11 9 58 0	1722.	8 8 31 0	11 9 58 0	1722.	8 8 31 0	11 9 58 0
December 27.	18 15 49 7	11 25 48 4	December 27.	18 15 49 7	11 25 48 4	December 27.	18 15 49 7	11 25 48 4	December 27.	18 15 49 7	11 25 48 4
Hours — 7	17 15	17 15	Hours — 7	17 15	17 15	Hours — 7	17 15	17 15	Hours — 7	17 15	17 15
Minut. — 40	1 39	1 39	Minut. — 40	1 39	1 39	Minut. — 40	1 39	1 39	Minut. — 40	1 39	1 39
Mean M. — 40	16 45 33	8 58 59	Mean M. — 40	16 45 33	8 58 59	Mean M. — 40	16 45 33	8 58 59	Mean M. — 40	16 45 33	8 58 59
Equation add	18 39		Equation add	18 39		Equation add	18 39		Equation add	18 39	
Sun's Place	17 4 12		Sun's Place	17 4 12		Sun's Place	17 4 12		Sun's Place	17 4 12	
Logar. @ 2	4.99230		Logar. @ 2	4.99230		Logar. @ 2	4.99230		Logar. @ 2	4.99230	

N.B. The 27th Day of December, the Equation of Time is 7' 11", which Sub. from the equal Time 17 40 leaves the apparent Time 17 29 29". And on the 29th Day, the Equation is 7' 57" Sub. from the equal Time of the Conjunction 19 34 16" leaves 19 26 19", the apparent Time; at which time from A.C. keep is in 2 24 12 39" with 24' Latitude South Ascending. These three Planets *Mars* near together several Days before and after the Conjunction; but cannot be seen without a good Telescope, because the *Sun* is less than 18 deg. below the Horizon when they Rise.

This Triple Conjunction, now so much on the Wings of Fame, is celebrated in the fiery Sign *Sagittary*, as appears by the laborious Calculation above, and is what Astrologers call a double body'd Sign, which they tell you is the Ascendant of *Spain*; Effects, let them read *Lilly's Merlinus Anglicus Astrologicus*, Page 59. and 62, and also Mr. *William Beetsen's Prodomus Astrologicus*, Page 24. &c. In this Diagram, the Line mark'd with the Signs of the Zodiac is the Ecliptic, near which Line these three Planets always keep, viz. they are found sometimes on the North Side, (as at this Time *Saturn* and *Jupiter* are) and then they are said to have North Latitude; at another Time they are found in the Ecliptic, and then they are said to have no Latitude: At other Times they are found on the South Side thereof, (as *Mars* now is) and then they are said to have South Latitude; and this Wandering of them, is caused by their Orbits lying out of the Plane of the Ecliptic; for *Saturn's* Heliocentric Orbit makes an Angle with the Ecliptic of 2° 30' 30"; *Jupiter's* of 1° 23' 11"; and *Mars's* of 1° 51', and their Geocentric Orbits, doth not often differ much from the Heliocentric: Now *Saturn's* North Node is in 21° 45', *Jupiter's* in 7° 23', and *Mars's* in 18° 12', they sometimes are near the Earth, and at another Time far removed; they also move at one Time direct, according to the Order of the Signs from 1 to 12, at another Time Retrograde or backward, as from 12 to 1, &c. but there is no such real backward Motion in themselves, but only such an Appearance to us at the Earth, caused by the Earth's Motion: And all these Laws of Motion was given them at the Creation by their allwise Creator, which Bounds they cannot pass. A Conjunction of two or more Planets, is, when they by their Motion in Longitude are at one and the same Time upon one Circle of Longitude, as here the two black Dots marked with *a* and *b*, in the Line *d e*, we suppose to represent *Saturn* and *Jupiter* in Conjunction, for the Line *d e*, cuts the Ecliptic at Right Angles, and is supposed to be continued thro' the Poles of the Ecliptic: The black Dot marked with *c*, we put to represent *Mars*, which you see is not on the Circle of Longitude *d e*, and consequently is not in true Conjunction with them: *Saturn* is Elevated above *Jupiter* 48' 16", and they rise at London Dec. 28, 1722. 1^h 41' before the *Sun*, nearly S. E. half Easterly, but can scarcely be seen with the naked Eye, because they rise in the Twilight. I must beg leave further to acquaint the Reader, that this Conjunction is not any Thing out of the Order or Course of Nature: No! It is what is common amongst the Planets, they are not Comets or blazing Stars, as the common People believe them to be; *Saturn* and *Jupiter* meet once in twenty Years (See my *Treatise of Eclipses*, Page 90) but then *Mars* doth not always attend them; he was with them in the Year 1524, and Anno 1604. and now he attends very close, but will not meet them both together again untill the Year 1841. So what I have more to add on this Conjunction is, I pray God preserve those Places and People subject to it's Effects, from Plague, Pestilence, and Famine; from Battle and Murder and from sudden Death, good Lord deliver us. Amen.



Equal Time true σ at London 1722. October	D. H. I. II.
Equation of Time add	29 6 17 25
Apparent Time of the true σ	16 2
Mean Anomaly of σ	29 6 33 27
True Distance of σ a <i>Earth</i>	4 10 43 52
Geocentric Longitude of σ and γ R	5 12 53 41
Latitude N. A.	7 16 46 36
Anomaly of Commutation	6 0 0
Inclination, or Heliocentric Lat.	13 26
Elongation to σ Hours before σ	35 21
Difference of Lat. in six Hours	5 12
Angle of the Visible way	8 22 3
Nearest Approach of Center <i>Sun</i> and γ	6 12
Motion from the middle to true σ	54
True Lat. γ at the Middle	6 8
Motion of half the Visible way	14 51
Difference of Lat. between Middle, Beginning, and End.	14 42
γ true Lat. A <i>Earth</i> When the first touches N	2 10
Time from the true σ to the Middle Sub.	3 38
Time of half duration Sub. and add	8 17 4
Arch of the σ Perimeter a Ecliptic first touches	9 10
Apparent Semidiameter of γ 4', of <i>Sun</i>	2 29 42
Central Ingress 1722, October	14 25 0
Middle of the Eclipse	31 1 0
True Conjunction	16 6
Central Egress, or End	29 3 54 35
Total Duration	6 24 17
Declinat. 16° 51' S.	6 33 27
A. Difference — 22 33 = 1° 30' 12"	8 53 59
(Sets 4' 2' 48". But γ enters on the <i>Sun</i> disk 35' 15" at London, before <i>Sun</i> Sets.	4 59 24



At the middle Time of the Transit, the *Sun* is vertical to the Pacific Ocean in Longitude 95° to the West of the Meridian of London, and 16° 51' South Latitude, which falls 16° to the West of Peru in South-America. Mercury will make a black Spot in the *Sun*, not much unlike a Patch on a Lady's Face. And when the careful Astronomer is observing the time that Mercury enters on the *Sun*, let him look about two-thirds of the *Sun's* Diameter to the Left above, and he may there see *Venus*.

ANNO 1722, on Tuesday October 29, in the Evening, the Planet Mercury Transits the Sun's Disk, which will be seen in America, by such as are qualify'd and fitted with proper Instruments for that purpose, a Synopsis of the Calculation follows, ASTRONOMIA CAROLINA, by CHARLES LEADBETTER.